REMARKS

FORMAL MATTERS:

Claims 40-52, 91, 93-94, and the newly presented claim 96, are pending after entry of the amendments set forth herein.

Claims 40, 44, 46, and 47 are amended. Support for these amendments is found in the specification, for example, at page 27, lines 3-8, lines 19-23, etc. Support for claim 96 is found in the specification, for example, at page 13, lines 15-19, page 25, lines 1-9, etc.

No new matter is added.

REJECTIONS UNDER §112, ¶2

Claims 40-52, 91, 93 and 94 are rejected under 35 U.S.C. 112, second paragraph, as allegedly being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

The Examiner asserts that claim 40 is vague with respect to recitation of "the second reagent *sufficient* to capture an analyte of hemoglobin". The Examiner also asserts that since this second reagent is not immobilized in this location, it is unclear whether the analyte captured in this area will stay here.

Without conceding to the correctness of this ground of rejection and solely to expedite prosecution, claim 40 is amended to clarify that the second reagent is immobilized and that the second reagent captures an analyte of hemoglobin.

In view of the above, this rejection has been adequately addressed and as such may be withdrawn. Withdrawal of this rejection is respectfully requested.

REJECTIONS UNDER §103(A)

Claims 40-52, 91 and 93-94 are rejected under 35 U.S.C. 103(a) as allegedly being unpatentable over Ullman (US 4,857,453) in view of Zeuthen et al (US 5,206,144), Law (6,561,581) and Zin (US 6,534,324). In view of the amendments to the claims and the remarks made herein, this rejection may be withdrawn.

In order to meet its burden in establishing a rejection under 35 U.S.C. §103(a), the Patent Office must first demonstrate that the combined prior art references teach or suggest all the claimed limitations.

MPEP § 2143(A). In addition to demonstrating that all elements were known in the prior art, the Patent Office must also articulate a reason for combining the elements. See, *e.g., KSR Int'l Co. v. Teleflex Inc.,* 127 S.Ct 1727 (2007) ("*KSR*") at 1741; *Omegaflex, Inc. v. Parker-Hannifin Corp.,* 243 Fed. Appx. 592, 595-596 (Fed. Cir. 2007) citing *KSR*; and *Innogenetics, N.V. v. Abbott Laboratories* 512 F.3d 1363, 1373, 85 USPQ2d 1641 (Fed. Cir. 2008). Furthermore, according to MPEP § 2143.01 (V), if a proposed modification would render the prior art invention being modified unsatisfactory for its intended purpose, then there is no suggestion or motivation to make the proposed modification.

As will be discussed in greater detail below, the cited combination of prior art references fails to teach each and every element found in the claims. Moreover, the proposed combination of references would render the prior art unsatisfactory for its intended purpose. Accordingly, the Applicant asserts that the cited combination of prior art references is insufficient to establish a *prima facie* case of obviousness.

Combination of References Fails to Teach All Elements

Claim 1 and its dependents require, *inter alia*, a membrane comprising a first location having a first reagent disposed thereon, wherein the first reagent lyses cells in the blood sample. The cited combination of prior art references fails to teach or suggest each and every element found in the claims. For example, the cited combination of prior art references fails to teach or even suggest a membrane comprising a first location having a first reagent disposed thereon, wherein the first reagent lyses cells in the blood sample.

In formulating this rejection, the Office asserts that "Ullman teaches that the buffer capsules contain solvent for the sample including detergent, buffers such as borate, phosphate, tris, etc." (Office Action dated March 31, 2009, page 3, last line-page 4, first line). Contrary to the assertion in the Office Action that "Ullman teaches that the buffer capsules contain solvent for the sample including detergent", the Applicant notes that Ullman does not teach a capsule containing a detergent or any other lysing agent. Rather at col. 14, lines 65-66, Ullman states that "from about 0.05 to 0.5 weight percent of a non-ionic detergent is included with the sample". Thus, Ullman teaches that the sample may include a small amount of non-ionic detergent. There is no teaching or suggestion in Ullman that the detergent is in the buffer capsule(s).

The Office Action states that Ullman fails to teach a lysing agent, for which the Office turns to Law. The Office Action states that law teaches applying an untreated whole blood sample to a sample

well, lysing the blood sample with a lysing agent, transporting the mixture to a capture zone, binding the glycated hemoglobin with a capture agent, and adding a developing solution to enable detection of the captured glycated hemoglobin. The Office reasons that it would have been obvious to use at least one of the buffer capsules taught by Ullman for the lysing agent taught by Law.

The Applicant submits that the proposed modification of Ullman to contain a lysing agent in at least one capsule of Ullman's device would not result in a membrane comprising a first location having a first reagent disposed *thereon*, wherein the first reagent lyses cells in the blood sample **and** a second location **downstream relative to the first location** having a second reagent immobilized thereon, as required by the rejected claims. Rather, when the detergent containing capsule of Ullman's modified device (as proposed by the Office) would be broken, the lysis agent would be distributed **throughout** the entire strip and would overlap with the immunosorbing zone of Ullman (see for example, Ullman, Fig. 4). Thus, the strip would not have a first location having a first reagent disposed thereon, wherein the first reagent sufficient to lyse cells in the blood sample **and** a "second location **downstream relative to the first location** having a second reagent disposed immobilized thereon".

Accordingly, the combination of the cited references fails to teach or suggest all of the claims elements. For this reason alone, this rejection may be withdrawn.

The Proposed Modification Cannot Render the Prior Art Unsatisfactory For Its Intended Purpose

As noted above, if a proposed modification would render the prior art invention being modified unsatisfactory for its intended purpose, then there is no suggestion or motivation to make the proposed modification, thereby failing to establish a *prima facia* case of obviousness (MPEP § 2143.01 (V)).

The Office asserts that it would have been obvious to use at least one of the buffer capsules taught by Ullman for the lysing agent taught by Law.

The Applicant respectfully disagrees with the finding of obviousness in the Office Action and hereby asserts that the proposed combination of prior art references would render the Ullman's device unsatisfactory for its intended purpose under MPEP § 2143.01 (V).

Ullman's immunoassay device includes an immunosorbing zone **84** which may contain an antibody that specifically binds to an analyte in a test sample or a receptor for a ligand present in a test sample. In addition, the immunosorbing zone may additionally contain enzymes for color development. Ullman's device is used to capture an analyte that binds to an antibody or receptor present in the

immunosorbing zone. (col. 10, lines 3-31, col. 14, lines 26-28, col. 16, line 67-col. 17, line 1, col. 18, lines 61-65, col. 19, lines 54-66, claims 4, 12, 19, 21, 31, etc.).

Modifying the capsules in Ullman that contain buffers and substrates for enzymes for color development to contain detergent for lysing the whole blood sample as suggested in the Office Action would render Ullman's immunoassay device unsatisfactory for its intended purpose because the presence of detergent in the immunoassay device will interfere with the binding of the antibody to its antigen as well as with the enzymatic activity which is required to detect the binding. Since the binding of the analyte to the immunosorbing zone and the activity of the detection enzyme of the immunoassay device of Ullman is indispensable for the operation of the device, it follows that the person of ordinary skill in the art would not be motivated to modify Ullman's device to contain a detergent because the modified device would be unsatisfactory for their intended use.

Accordingly, the Applicant hereby asserts that there is no motivation to combine the cited prior art references, as suggested in the Office Action, because the proposed combination would render the device of Ullman unsatisfactory for its intended purpose, in violation of MPEP § 2143.01 (V).

The Office Has Improperly Used Hindsight Reconstruction to Establish a Prima Facie Case of Obviousness

In *KSR International Co. v. Teleflex Inc.*, the United States Supreme Court noted that any analysis supporting a rejection under § 103(A) should be made explicit, and that it is "important to **identify a reason** that would have prompted a person of ordinary skill in the relevant field to combine the [prior art] elements in the manner claimed." *KSR International Co. v. Teleflex Inc.*, 127 S. Ct. 1727, 1741 (U.S. 2007). Put another way, the Court stated that it is important to "determine whether there was an apparent reason to combine the known elements in the way a patent claims." *Id.* "This is so because inventions in most, if not all, instances rely upon building blocks long since uncovered, and claimed discoveries almost of necessity will be combinations of what, in some sense, is already known." *Id.* If such a reason is identified and articulated in the Office Action, it can provide the foundation for an obviousness determination through the combination of two or more analogous prior art references. However, when there is no articulated reason for making the proposed combination, merely defining the problem in terms of its solution reveals improper hindsight in the selection of the prior art relevant to obviousness. *Monarch Knitting Mach. Corp. v. Sulzer Morat GmbH*, 139 F.3d 877, 881 (Fed. Cir.

1998). With these guiding principles of law in mind, the Applicants now turn to the facts and circumstances of the instant case.

Claim 40 and its dependents are drawn to a method that includes providing a strip comprising a membrane, the membrane comprising a receiving portion for receiving the blood sample; a first location having a first reagent disposed thereon, wherein the first reagent lyses cells in the blood sample; and a second location downstream relative to the first location having a second reagent immobilized thereon, wherein the second reagent captures an analyte of the hemoglobin in the blood sample; providing an eluting agent disposed on the strip upstream relative to the first location, wherein the eluting agent elutes hemoglobin in the blood sample; applying an untreated whole blood sample to the receiving portion of the membrane; allowing the eluting agent to flow downstream along the membrane and contact the untreated whole blood sample, and detecting a level of the analyte captured at the second location.

In order to make an obviousness rejection of the instant claims, the Office relies on Ullman for teaching applying a sample to an immunoassay device comprising an immunosorbing zone for capturing analytes in a sample; breaking a capsule to release a detection reagent, allowing the reagent to reach the immunosorbing zone and observing the immunosorbing zone for presence of a signal that indicates the presence of an analyte (Ullman, col. 17, lines 5-51, claims 33-34). The Office then turns to Law which teaches lysing a whole blood sample with a lysing agent before transferring the lysed mixture to a capture zone. The Office reasons that since detection of hemoglobin as taught by Law necessitates blood sample lysis, it is obvious to modify Ullman's capsule to contain a lysing agent.

The Office has conveniently chosen to modify the capsule of Ullman to contain a lysis reagent to establish a *prima facie* case of obviousness without considering how the resulting combination would function as a whole. Ullman teaches first applying the sample, allowing it to travel to the immunosorbing zone and then breaking the capsule to allow the detection reagent to reach the immunosorbing zone and generate a signal that indicates the presence of an analyte. If Ullman's device was modified as suggested in the Office Action, and Ullman's method was followed, by the time the capsule containing the detergent is broken and the detergent reaches the immunosorbing zone, the sample would have traversed through the immunosorbing zone, **without** being lysed. Thus, the modification would not result in a device that cannot be used to detect hemoglobin in the blood sample.

In light of the foregoing arguments, the Applicant respectfully takes the position that the combination of prior art references proposed in the Office Action is insufficient to render the instant invention obvious. As such, the Applicant respectfully requests that the rejection be withdrawn.

Newly presented claim 96 is patentable at least for the foregoing reasons.

CONCLUSION

Applicant submits that all of the claims are in condition for allowance, which action is requested. If the Examiner finds that a telephone conference would expedite the prosecution of this application, please telephone the undersigned at the number provided.

The Commissioner is hereby authorized to charge any underpayment of fees associated with this communication, including any necessary fees for extensions of time, or credit any overpayment to Deposit Account No. 50-0815, order number ADCI-010.

Respectfully submitted,
BOZICEVIC, FIELD & FRANCIS LLP

Date: June 15, 2009

By: /Edward J. Baba, Reg. No. 52,581/
Edward J. Baba
Registration No. 52,581

Date: June 15, 2009

By: /Shweta Chandra, Reg. No. 61,379/
Shweta Chandra
Registration No. 61,379

BOZICEVIC, FIELD & FRANCIS LLP
1900 University Avenue, Suite 200
East Palo Alto, California 94303
Telephone: (650) 327-3400
Facsimile: (650) 327-3231